

PATENT SPECIFICATION

752,816



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COMPLETE SPECIFICATION

Improvements in or relating to Apparatus for the Loading of Bags, Cases, Hardware and the like

I, HEINZ WILHELM HESSLING, a German National, of 41, Oststrasse, Beckum in Westphalia, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement: -

The invention concerns a conveyor plant for the loading of bags, cases or the like, more especially for the conveying of objects accumulating on packing machines, such as of cement bags, artificial manure bags and the like, on to vehicles.

An object of the present invention is to provide such a conveyor plant which may be loaded mechanically, thus requiring a minimum of personnel and which is so simple, reliable and foolproof that even unskilled operators may be used.

According to the present invention an apparatus is provided for the loading of bags, cases and the like including a driven loading and a driven feeding conveyor in which the loading conveyor is supported on a lift platform whereby it is raised or lowered, and is rotatably mounted on this platform about a vertical axis, and in which the feeding conveyor is mounted at its lower end so as to be pivotable about a horizontal axis and at its discharge and upper end rests, by means of rollers connected to stays, on an arcuate track provided on the loading conveyor. With this construction of the loading device only two men are necessary for operating the entire plant and these are able to control the work smoothly without any substantial expenditure of effort. A considerable increase in output or efficiency may also be obtained. The loading conveyor may be so mounted as to be horizontally displaceable on the lift platform and an advantage is obtained in that the operator standing on the vehicle can easily rotate and displace the loading conveyor horizontally by hand, so that it may be adjusted to any part of the vehicle, the

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height of the loading conveyor being adjusted by the lift platform. As the loading conveyor mounted on the lift platform may be displaced horizontally and at any desired height, a take-off platform which may be mounted at the end of the loading conveyor and have a fixed angle of inclination relative to this latter may be provided, a feature which is of considerable importance for the safe conveyance of the bags and cases. It is preferable to give the loading conveyor a higher speed of circulation than the feeding conveyor.

The loading apparatus in accordance with the invention makes it possible to load normal lorries without opening the side flaps. By this means good use of the floor space is obtained and the safety of the vehicle in travel is increased. As the whole floor space is used the laden goods are well preserved, as the tendency for the goods to slip is minimised.

The invention will be described further, by way of example, with reference to the accompanying drawings in which:—

Fig. 1 is a side elevation of the loading device;

Fig. 2 is a plan view thereof; and

Fig. 3 is a modification of the loading device, shown in Figs. 1 and 2, which is suitable for the conveying of hardware.

A loading conveyor 2, comprising an endless belt conveyor is rotatably mounted about a vertical axis on a platform of a hydraulically driven lifting stage 1. This loading conveyor 2 is displaceable horizontally by means of rails 3 resting on rollers 4 mounted on the lift platform. This loading belt conveys the bags to a take-off platform 5 which may be positioned above any point of a vehicle 6 owing to the adjustability of the position of this loading belt, so that the bags may easily be loaded on to a lorry. As the loading belt 2 is always in a horizontal plane no special effort is necessary for its vertical

displacement and/or horizontal rotation, so that the workmen on the lorry 6 can carry out these movements by hand. In this manner the plant is made very much simpler, as now only a mechanical drive for the ram and the belts is necessary. The press button for operating the lift platform is preferably mounted on the front of the loading belt 2 or even on the take-off platform 5 for the bags so that the operator on the lorry can also adjust the level of the loading belt.

The loading belt 2 is provided on each side with circular track 7. On this circular track a feeding conveyor belt 8 is supported by means of rollers 10 mounted on stays 9 so that when the loading belt 2 is rotated, the feeding belt retains its position. The conveyor belt of the loading belt 2 circulates at greater speed than the feeding belt 8, the advantage of this being that the objects conveyed from the feeding belt 8 to the loading belt 2 will tend to be straightened. The feeding belt 8 conveys the bags to a chute 11 down which they slide on to the belt 2. The bags accumulating in the packing machine (not shown) are supplied to the feeding belt 8 via a conveyor belt 12. Between this conveyor belt 12 and the feeding belt 8 a gap 13 occurs, and similarly a gap 14 occurs between the loading belt 2 and the take-off platform 5. The contents of a bag may be discharged through these channels when paper bags tear during conveyance owing to inferior-quality paper, for example. In this manner their contents, such as cement, artificial manure or the like, is discharged through these channels and may be collected, whilst it does not interfere with loading the lorry.

4. So that the feeding belt 8 can follow the rise and fall of the loading belt, it is rotatably mounted about a horizontal transverse axis 15.

Fig. 3 shows a plan view of a modification of the device shown in Figs. 1 and 2 including a conveyor system suitable for the conveying of hardware, such as crates and cans. In this embodiment the belt conveyors 2 and 8 are replaced by roller conveyors.

The feeding conveyor 8 comprises a series of rollers 16, provided in known manner with toothed-wheels 17 and driven by an engine through chains 18. The loading conveyor 2 is similarly constructed. It is advisable for the chute 11 also to consist of rollers which naturally need not be driven.

What I claim is:—

1. An apparatus for the loading of bags, cases and the like including a driven loading and a driven feeding conveyor, in which the

loading conveyor is supported on a lift platform whereby it is raised or lowered, and is rotatably mounted on this platform about a vertical axis, and in which the feeding conveyor mounted at its lower end so as to be pivotable about a horizontal axis and at its discharge and upper end rests, by means of rollers connected to stays, on an arcuate track provided on the loading conveyor.

2. An apparatus as claimed in Claim 1 in which the loading conveyor is mounted so as to be horizontally displaceable on the lift platform.

3. An apparatus as claimed in Claim 1 or 2 in which a chute is mounted between the loading conveyor and the feeding conveyor.

4. An apparatus as claimed in any of Claims 1 to 3 in which a conveyor belt is provided prior to the feeding conveyor, a gap being provided therebetween, a further gap being provided between the loading conveyor and a take-off platform positioned after said loading conveyor.

5. An apparatus as claimed in Claim 4, in which a press button control for the lift platform is mounted on the front of the loading conveyor or the take-off platform.

6. An apparatus as claimed in Claim 4 or 5, in which the take-off platform is rigidly mounted on the loading conveyor.

7. An apparatus as claimed in any of Claims 1 to 6, in which both the loading conveyor and the feeding conveyor consist of a series of rollers, the conveyors being driven by means of a chain and sprocket wheels.

8. An apparatus as claimed in any of Claims 1 to 6 in which, both the loading and the feeding conveyors comprise endless belt conveyors.

9. An apparatus as claimed in Claim 8 in which the loading conveyor circulates at greater speed than the feeding conveyor.

10. An apparatus as claimed in Claim 3, in which the chute consists of freely rotatable rollers.

11. A conveying apparatus constructed and arranged to operate substantially as described herein with reference to and as illustrated in Figs. 1 and 2 of the accompanying drawings.

12. A conveying apparatus constructed and arranged to operate substantially as described herein with reference to and as illustrated in Fig. 3 of the accompanying drawings.

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Fig.1

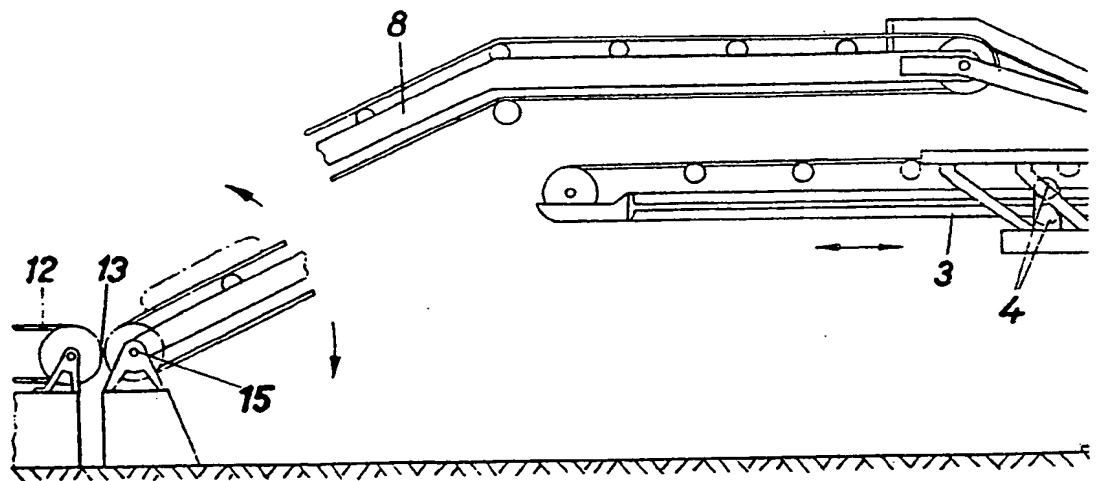
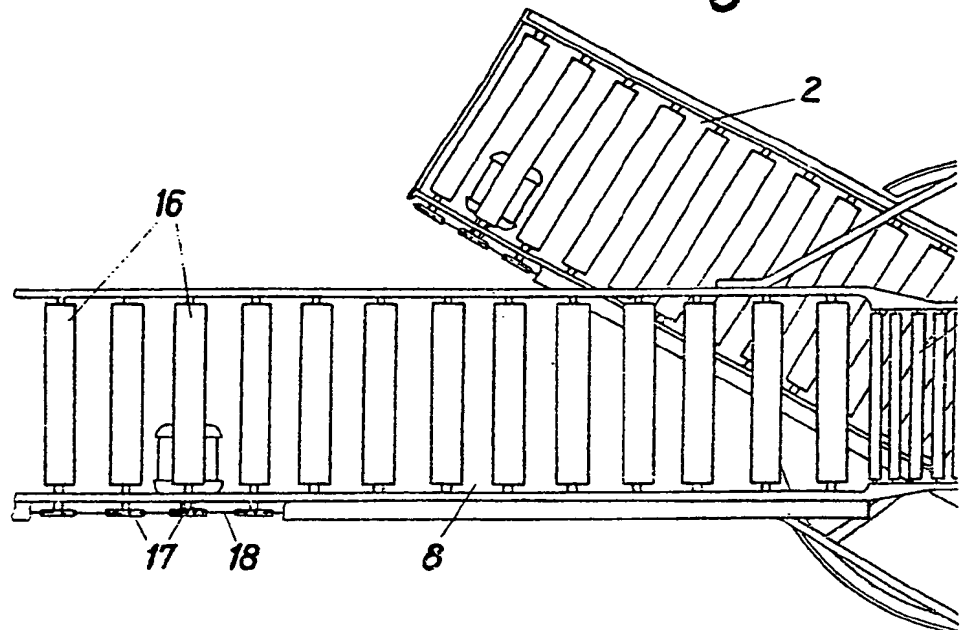


Fig.3



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2 SHEETS

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SHEET 1

Fig. 1

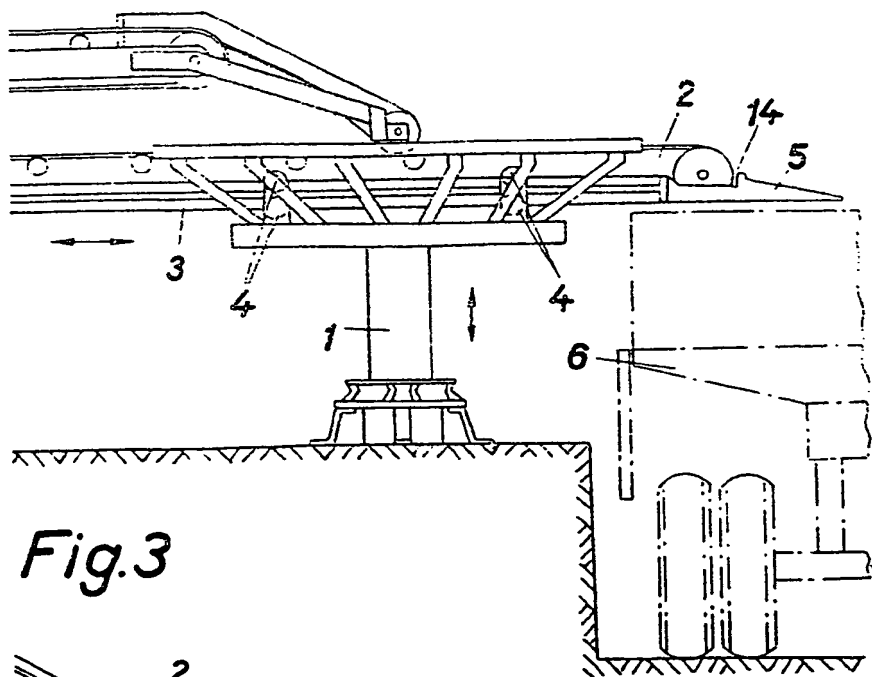
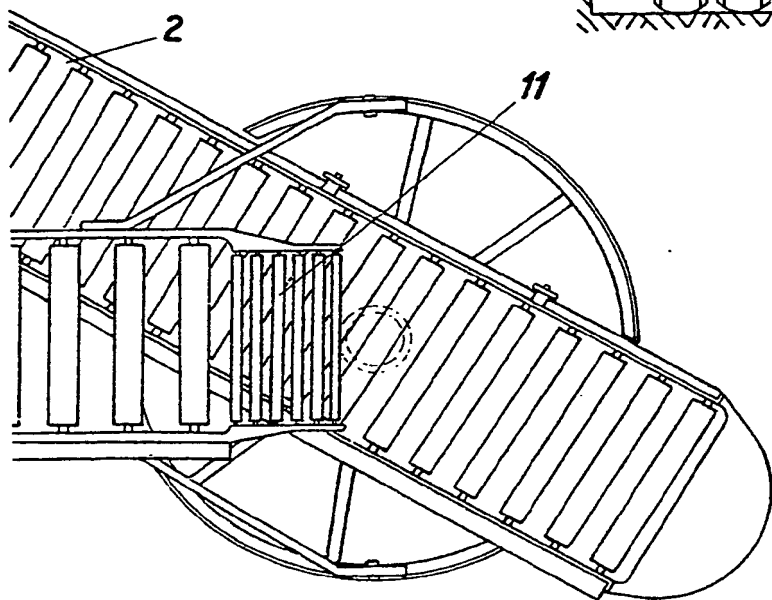


Fig. 3



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 Sheet 1

Fig. 1

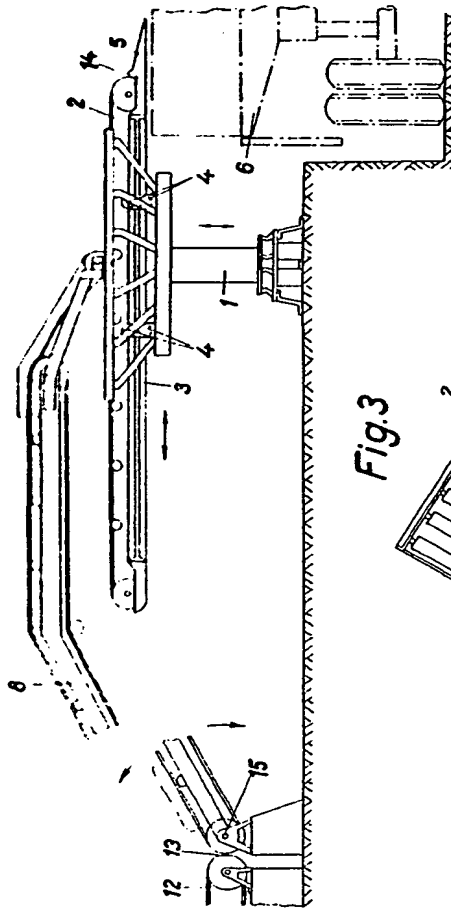
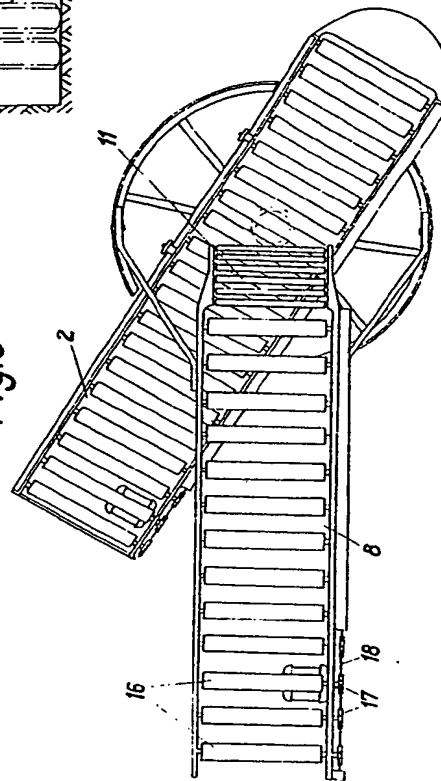


Fig. 3



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2 SHEETS

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SHEET 2

Fig.2

